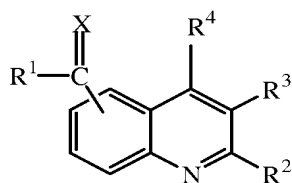


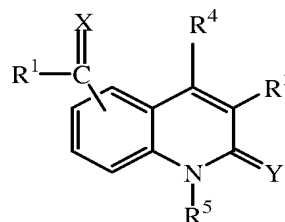
This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A radiolabelled compound according to Formula (I-A)* or (I-B)*



(I-A)*



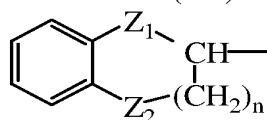
(I-B)*

an *N*-oxide form, a pharmaceutically acceptable addition salt, a quaternary amine and a stereochemically isomeric form thereof, wherein

X represents O; C(R⁶)₂ with R⁶ being hydrogen, aryl or C₁₋₆alkyl optionally substituted with amino or mono- or di(C₁₋₆alkyl)amino; S or N-R⁷ with R⁷ being amino or hydroxy;

R¹ represents C₁₋₆alkyl; aryl; thienyl; quinoliny; cycloC₃₋₁₂alkyl or (cycloC₃₋₁₂alkyl)C₁₋₆alkyl, wherein the cycloC₃₋₁₂alkyl moiety optionally may contain a double bond and wherein one carbon atom in the cycloC₃₋₁₂alkyl moiety may be replaced by an oxygen atom or an NR⁸-moiety with R⁸ being hydrogen, benzyl or C₁₋₆alkyloxycarbonyl; wherein one or more hydrogen atoms in a C₁₋₆alkyl-moiety or in a cycloC₃₋₁₂alkyl-moiety optionally may be replaced by C₁₋₆alkyl, hydroxyC₁₋₆alkyl, haloC₁₋₆alkyl, aminoC₁₋₆alkyl, hydroxy, C₁₋₆alkyloxy, arylC₁₋₆alkyloxy, halo, C₁₋₆alkyloxycarbonyl, aryl, amino, mono- or di(C₁₋₆alkyl)amino, C₁₋₆alkyloxycarbonylamino, halo, piperazinyl, pyridinyl, morpholinyl, thienyl or a bivalent radical of formula -O-, -O-CH₂-O or -O-CH₂-CH₂-O-;

or a radical of formula (a-1)



a-1

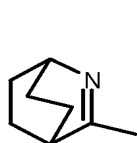
wherein Z₁ is a single covalent bond, O, NH or CH₂;

Z₂ is a single covalent bond, O, NH or CH₂;

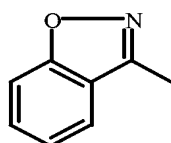
n is an integer of 0, 1, 2 or 3;

and wherein each hydrogen atom in the phenyl ring independently may optionally be replaced by halo, hydroxy, C₁₋₆alkyl, C₁₋₆alkyloxy or hydroxyc₁₋₆alkyl;

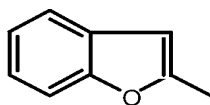
or X and R¹ may be taken together with the carbon atom to which X and R¹ are attached to form a radical of formula (b-1), (b-2) or (b-3);



b-1



b-2



b-3

R² represents hydrogen; halo; cyano; C₁₋₆alkyl; C₁₋₆alkyloxy; C₁₋₆alkylthio; C₁₋₆alkylcarbonyl; C₁₋₆alkyloxycarbonyl; C₁₋₆alkylcarbonyloxyC₁₋₆alkyl; C₂₋₆alkenyl; hydroxyc₂₋₆alkenyl; C₂₋₆alkynyl; hydroxyc₂₋₆alkynyl; tri(C₁₋₆alkyl)silaneC₂₋₆alkynyl; amino; mono- or di(C₁₋₆alkyl)amino; mono- or di(C₁₋₆alkyloxyC₁₋₆alkyl)amino; mono- or di(C₁₋₆alkylthioC₁₋₆alkyl)amino; aryl; arylC₁₋₆alkyl; arylC₂₋₆alkynyl; C₁₋₆alkyloxyC₁₋₆alkylaminoC₁₋₆alkyl; aminocarbonyl optionally substituted with C₁₋₆alkyl, C₁₋₆alkyloxyC₁₋₆alkyl, C₁₋₆alkyloxycarbonylC₁₋₆alkyl or pyridinylC₁₋₆alkyl; a heterocycle selected from thienyl, furanyl, pyrrolyl, thiazolyl, oxazolyl, imidazolyl, isothiazolyl, isoxazolyl, pyrazolyl, pyridyl, pyrazinyl, pyridazinyl, pyrimidinyl, piperidinyl and piperazinyl, optionally N-substituted with C₁₋₆alkyloxyC₁₋₆alkyl, morpholinyl, thiomorpholinyl, dioxanyl or dithianyl ; a radical -NH-C(=O)R⁹ wherein R⁹ represents

C₁₋₆alkyl optionally substituted with cycloC₃₋₁₂alkyl, C₁₋₆alkyloxy, C₁₋₆alkyloxycarbonyl, aryl, aryloxy, thienyl, pyridinyl, mono- or di(C₁₋₆alkyl)amino, C₁₋₆alkylthio, benzylthio, pyridinylthio or pyrimidinylthio; cycloC₃₋₁₂alkyl; cyclohexenyl; amino; arylcycloC₃₋₁₂alkylamino; mono-or-di(C₁₋₆alkyl)amino; mono- or di(C₁₋₆alkyloxycarbonylC₁₋₆alkyl)amino; mono- or di(C₁₋₆alkyloxycarbonyl)amino; mono-or di(C₂₋₆alkenyl)amino; mono- or di(arylC₁₋₆alkyl)amino; mono- or diarylamino; arylC₂₋₆alkenyl; furanylC₂₋₆alkenyl; piperidinyl; piperazinyl; indolyl; furyl; benzofuryl;

tetrahydrofuryl; indenyl; adamantyl; pyridinyl; pyrazinyl; aryl;
arylC₁₋₆alkylthio or a radical of formula (a-1) ;

a sulfonamid -NH-SO₂-R¹⁰ wherein R¹⁰ represents C₁₋₆alkyl, mono- or poly
haloC₁₋₆alkyl, arylC₁₋₆alkyl, arylC₂₋₆alkenyl, aryl, quinolinyl, isoxazolyl or
di(C₁₋₆alkyl)amino;

R³ and R⁴ each independently represent hydrogen; halo; hydroxy; cyano; C₁₋₆alkyl;
C₁₋₆alkyloxy; C₁₋₆alkyloxyC₁₋₆alkyl; C₁₋₆alkylcarbonyl; C₁₋₆alkyloxy carbonyl;
C₂₋₆alkenyl; hydroxyC₂₋₆alkenyl; C₂₋₆alkynyl; hydroxyC₂₋₆alkynyl;
tri(C₁₋₆alkyl)silaneC₂₋₆alkynyl; amino; mono- or di(C₁₋₆alkyl)amino; mono- or di(C₁₋₆
alkyloxyC₁₋₆alkyl)amino; mono- or di(C₁₋₆alkylthioC₁₋₆alkyl)amino; aryl;
morpholinylC₁₋₆alkyl or piperidinylC₁₋₆alkyl ; or

R² and R³ may be taken together to form -R²-R³-, which represents a bivalent radical of
formula -(CH₂)₃-, -(CH₂)₄-, -(CH₂)₅-, -(CH₂)₆-, -CH=CH-CH=CH-,
-Z₄-CH=CH-, -CH=CH-Z₄-, -Z₄-CH₂-CH₂-CH₂-, -CH₂-Z₄-CH₂-CH₂-,
-CH₂-CH₂-Z₄-CH₂-,
-CH₂-CH₂-CH₂-Z₄-, -Z₄-CH₂-CH₂-, -CH₂-Z₄-CH₂- or -CH₂-CH₂-Z₄-, with Z₄ being O, S,
SO₂ or NR¹¹ wherein R¹¹ is hydrogen, C₁₋₆alkyl, benzyl or C₁₋₆alkyloxy carbonyl; and
wherein each bivalent radical is optionally substituted with C₁₋₆alkyl.

or R³ and R⁴ may be taken together to form a bivalent radical of formula -CH=CH-CH=CH-
or -CH₂-CH₂-CH₂-CH₂- ;

R⁵ represents hydrogen; cycloC₃₋₁₂alkyl; piperidinyl; oxo-thienyl; tetrahydrothienyl,
arylC₁₋₆alkyl; C₁₋₆alkyloxyC₁₋₆alkyl; C₁₋₆alkyloxy carbonylC₁₋₆alkyl or C₁₋₆alkyl
optionally substituted with a radical C(=O)NR_xR_y, in which R_x and R_y, each
independently are hydrogen, cycloC₃₋₁₂alkyl, C₂₋₆alkynyl or C₁₋₆alkyl optionally
substituted with cyano, C₁₋₆alkyloxy, C₁₋₆alkyloxy carbonyl, furanyl, pyrrolidinyl,
benzylthio, pyridinyl, pyrrolyl or thienyl;

Y represents O or S;

or Y and R⁵ may be taken together to form =Y-R⁵- which represents a radical of formula

-CH=N-N= (c-1);
-N=N-N= (c-2); or
-N-CH=CH- (c-3);

aryl represents phenyl or naphthyl optionally substituted with one or more substituents
selected from halo, hydroxy, C₁₋₆alkyl, C₁₋₆alkyloxy, phenyloxy, nitro, amino, thio, C₁₋₆
alkylthio, haloC₁₋₆alkyl, polyhaloC₁₋₆alkyl, polyhaloC₁₋₆alkyloxy,

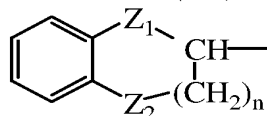
hydroxyC₁₋₆alkyl, C₁₋₆alkyloxyC₁₋₆alkyl, aminoC₁₋₆alkyl, mono-or di(C₁₋₆alkyl)amino; mono-or di(C₁₋₆alkyl)aminoC₁₋₆alkyl, cyano, -CO-R¹², -CO-OR¹³, -NR¹³SO₂R¹², -SO₂-NR¹³R¹⁴, -NR¹³C(O)R¹², -C(O)NR¹³R¹⁴, -SOR¹², -SO₂R¹²; wherein each R¹², R¹³ and R¹⁴ independently represent C₁₋₆alkyl; cycloC₃₋₆alkyl; phenyl; phenyl substituted with halo, hydroxy, C₁₋₆alkyl, C₁₋₆alkyloxy, haloC₁₋₆alkyl, polyhaloC₁₋₆alkyl, furanyl, thienyl, pyrrolyl, imidazolyl, thiazolyl or oxazolyl;

and when the R¹-C(=X) moiety is linked to another position than the 7 or 8 position, then said 7 and 8 position may be substituted with R¹⁵ and R¹⁶ wherein either one or both of R¹⁵ and R¹⁶ represents C₁₋₆alkyl, C₁₋₆alkyloxy or R¹⁵ and R¹⁶ taken together may form a bivalent radical of formula -CH=CH-CH=CH-; wherein the radiolabelled compound has at least one halo which is a radioactive isotope of iodine, bromine, or fluorine, at least one ¹¹C atom, or at least one tritium atom.

2. (Currently Amended) [[A]] The radiolabelled compound according to claim 1, wherein X represents O; C(R⁶)₂ with R⁶ being hydrogen or aryl; or N-R⁷ with R⁷ being amino or hydroxy;

R¹ represents C₁₋₆alkyl, aryl; thienyl; quinoliny; cycloC₃₋₁₂alkyl or (cycloC₃₋₁₂alkyl)C₁₋₆alkyl, wherein the cycloC₃₋₁₂alkyl moiety optionally may contain a double bond and wherein one carbon atom in the cycloC₃₋₁₂alkyl moiety may be replaced by an oxygen atom or an NR⁸-moiety with R⁸ being benzyl or C₁₋₆alkyloxycarbonyl; wherein one or more hydrogen atoms in a C₁₋₆alkyl-moiety or in a cycloC₃₋₁₂alkyl-moiety optionally may be replaced by C₁₋₆alkyl, haloC₁₋₆alkyl, hydroxy, C₁₋₆alkyloxy, arylC₁₋₆alkyloxy, halo, aryl, mono- or di(C₁₋₆alkyl)amino, C₁₋₆alkyloxycarbonylamino, halo, piperaziny, pyridiny, morpholiny, thienyl or a bivalent radical of formula -O- or -O-CH₂-CH₂-O-;

or a radical of formula (a-1)



a-1

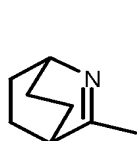
wherein Z₁ is a single covalent bond, O or CH₂;

Z₂ is a single covalent bond, O or CH₂;

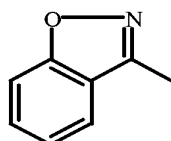
n is an integer of 0, 1, or 2 ;

and wherein each hydrogen atom in the phenyl ring independently may optionally be replaced by halo or hydroxy;

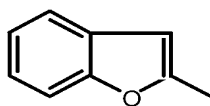
or X and R¹ may be taken together with the carbon atom to which X and R¹ are attached to form a radical of formula (b-1), (b-2) or (b-3);



b-1



b-2



b-3

R² represents hydrogen; halo; cyano; C₁₋₆alkyl; C₁₋₆alkyloxy; C₁₋₆alkylthio; C₁₋₆alkylcarbonyl; C₁₋₆alkyloxycarbonyl; C₂₋₆alkenyl; hydroxyC₂₋₆alkenyl; C₂₋₆alkynyl; hydroxyC₂₋₆alkynyl; tri(C₁₋₆alkyl)silaneC₂₋₆alkynyl; amino; mono- or di(C₁₋₆alkyl)amino; mono- or di(C₁₋₆alkyloxyC₁₋₆alkyl)amino; mono- or di(C₁₋₆alkylthioC₁₋₆alkyl)amino; aryl; arylC₁₋₆alkyl; arylC₂₋₆alkynyl; C₁₋₆alkyloxyC₁₋₆alkylaminoC₁₋₆alkyl; aminocarbonyl optionally substituted with C₁₋₆alkyloxycarbonylC₁₋₆alkyl; a heterocycle selected from thienyl, furanyl, thiazolyl and piperidinyl, optionally N-substituted with morpholinyl or thiomorpholinyl; a radical -NH-C(=O)R⁹ wherein R⁹ represents C₁₋₆alkyl optionally substituted with cycloC₃₋₁₂alkyl, C₁₋₆alkyloxy, C₁₋₆alkyloxycarbonyl, aryl, aryloxy, thienyl, pyridinyl, mono- or di(C₁₋₆alkyl)amino, C₁₋₆alkylthio, benzylthio, pyridinylthio or pyrimidinylthio; cycloC₃₋₁₂alkyl; cyclohexenyl; amino; arylcycloC₃₋₁₂alkylamino; mono-or-di(C₁₋₆alkyl)amino; mono- or di(C₁₋₆alkyloxycarbonylC₁₋₆alkyl)amino; mono- or di(C₁₋₆alkyloxycarbonyl)amino; mono-or di(C₂₋₆alkenyl)amino; mono- or di(arylC₁₋₆alkyl)amino; mono- or diarylamino; arylC₂₋₆alkenyl; furanylC₂₋₆alkenyl; piperidinyl; piperazinyl; indolyl; furyl; benzofuryl; tetrahydrofuryl; indenyl; adamantyl; pyridinyl; pyrazinyl; aryl or a radical of formula (a-1); a sulfonamid -NH-SO₂-R¹⁰ wherein R¹⁰ represents C₁₋₆alkyl, mono- or poly haloC₁₋₆alkyl, arylC₁₋₆alkyl or aryl;

R³ and R⁴ each independently represent hydrogen; C₁₋₆alkyl; C₁₋₆alkyloxyC₁₋₆alkyl; C₁₋₆alkyloxycarbonyl; or

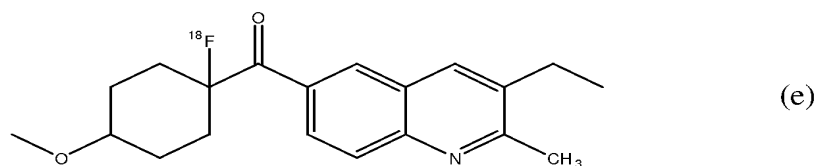
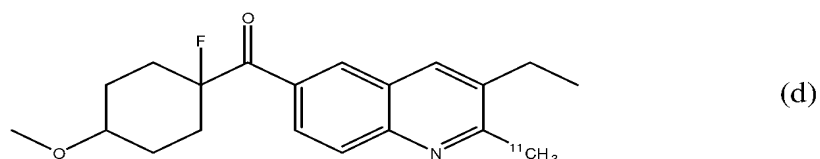
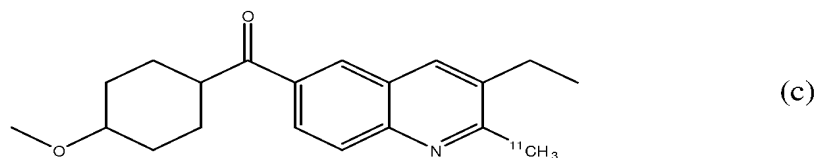
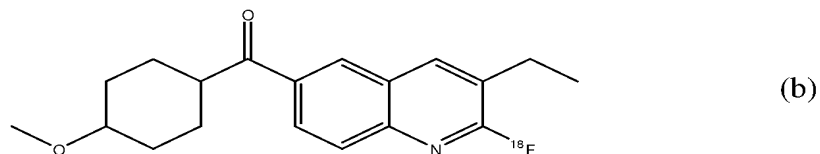
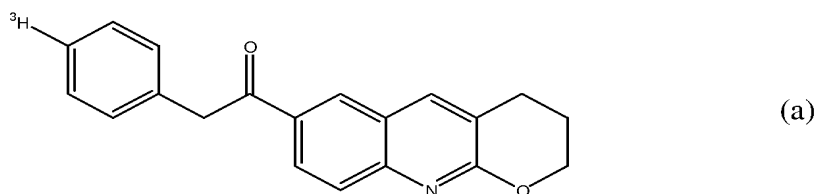
R² and R³ may be taken together to form -R²-R³-, which represents a bivalent radical of formula -(CH₂)₄-, -(CH₂)₅-, -Z₄-CH=CH-, -Z₄-CH₂-CH₂-CH₂- or -Z₄-CH₂-CH₂-, with Z₄ being O, S, SO₂ or NR¹¹ wherein R¹¹ is hydrogen, C₁₋₆alkyl, benzyl or

C₁₋₆alkyloxycarbonyl; and wherein each bivalent radical is optionally substituted with C₁₋₆alkyl;
or R³ and R⁴ may be taken together to form a bivalent radical of formula -CH=CH-CH=CH- or -CH₂-CH₂-CH₂-CH₂- ;
R⁵ represents hydrogen; piperidinyl; oxo-thienyl; tetrahydrothienyl, arylC₁₋₆alkyl; C₁₋₆alkyloxycarbonylC₁₋₆alkyl or C₁₋₆alkyl optionally substituted with a radical C(=O)NR_xR_y, in which R_x and R_y, each independently are hydrogen, cycloC₃₋₁₂alkyl, C₂₋₆alkynyl or C₁₋₆alkyl optionally substituted with cyano, C₁₋₆alkyloxy or C₁₋₆alkyloxycarbonyl;
Y represents O or S;
or Y and R⁵ may be taken together to form =Y-R⁵- which represents a radical of formula
-CH=N-N= (c-1); or
-N=N-N= (c-2);
aryl represents phenyl or naphthyl optionally substituted with one or more substituents selected from halo, C₁₋₆alkyloxy, phenyloxy, mono-or di(C₁₋₆alkyl)amino and cyano;
and when the R¹-C(=X) moiety is linked to another position than the 7 or 8 position, then said 7 and 8 position may be substituted with R¹⁵ and R¹⁶ wherein either one or both of R¹⁵ and R¹⁶ represents C₁₋₆alkyl or R¹⁵ and R¹⁶ taken together may form a bivalent radical of formula -CH=CH-CH=CH-.

3. (Currently Amended) [[A]] The radiolabelled compound according to claim 1, wherein,
X represents O;
R¹ represents C₁₋₆alkyl; cycloC₃₋₁₂alkyl or (cycloC₃₋₁₂alkyl)C₁₋₆alkyl, wherein one or more hydrogen atoms in a C₁₋₆alkyl-moiety or in a cycloC₃₋₁₂alkyl-moiety optionally may be replaced by C₁₋₆alkyloxy, aryl, halo or thienyl;
R² represents hydrogen; halo; C₁₋₆alkyl or amino;
R³ and R⁴ each independently represent hydrogen or C₁₋₆alkyl; or
R² and R³ may be taken together to form -R²-R³-, which represents a bivalent radical of formula -Z₄-CH₂-CH₂-CH₂- or -Z₄-CH₂-CH₂- with Z₄ being O or NR¹¹ wherein R¹¹ is C₁₋₆alkyl; and wherein each bivalent radical is optionally substituted with C₁₋₆alkyl;
or R³ and R⁴ may be taken together to form a bivalent radical of formula -CH₂-CH₂-CH₂-CH₂- ;
R⁵ represents hydrogen;
Y represents O; and

aryl represents phenyl optionally substituted with halo.

4. (Currently Amended) [[A]] The radiolabelled compound according to claim 1, wherein, the $R^1-C(=X)$ moiety is linked to the quinoline or quinolinone moiety in position 6.
5. (Canceled)
6. (Currently Amended) [[A]] The radiolabelled compound according to claim [[5]] 1, wherein the radioactive isotope is ~~selected from the group of~~ of 3H , ^{11}C and or ^{18}F .
7. (Currently Amended) [[A]] The radiolabelled compound according to claim 6, wherein the compound is any one of compounds (a), (b), (c), (d) and (e) :



8. (Currently Amended) ~~[[A]]~~ The radiolabelled compound according to claim ~~[[6]]~~ 7, wherein, the compound is compound (a).
9. (Currently Amended) ~~[[A]]~~ ~~Radioactive~~ radioactive composition for the administration to ~~mamals~~ mammals comprising a therapeutically effective amount of a radiolabelled compound according to claim 1 and a pharmaceutically acceptable carrier or diluent.
10. (Canceled)
11. (Currently Amended) A diagnostic method for an detecting the presence of a mGlu1 receptor comprising administering a ~~A~~ radiolabelled compound according to claim 1 ~~wherein the diagnostic method consists of marking or identifying a mGlu1 receptor in to biological material; and~~ detecting emissions from the radiolabelled compound.
12. (Canceled)
13. (Currently Amended) The method of claim 11 further comprising ~~A radiolabelled compound according to claim 1, wherein the diagnostic method consists of screening whether a test compound has the~~ for the ability to occupy or bind to a mGlu1 receptor in the biological material.
14. (Currently Amended) The method of claim 11 wherein ~~A radiolabelled compound or composition according to claim 1, wherein~~ the biological material is selected from the ~~group of~~ a tissue sample, plasma fluid, body fluid, body part from a warm-blooded animal, and or organ originating from a warm-blooded animal~~[[s]] and warm-blooded animals per se, in particular humans.~~
15. (Currently Amended) ~~A radiolabelled compound according to claim 1 for the manufacture of a~~ A diagnostic tool for marking or identifying an mGlu1 receptor in biological material, said tool comprising a radiolabelled compound according to claim 1.
16. (Canceled)

17. (Currently Amended) ~~A radiolabelled compound according to claim 1 for the manufacture of a~~ A diagnostic tool for screening whether a test compound has the ability to occupy or bind to a mGlu1 receptor in biological material, said diagnostic tool comprising a radiolabelled compound according to claim 1.
18. (New) A method for imaging an organ comprising the steps of
- (a) administering a sufficient amount of a compound according to claim 1 to the organ; and
 - (b) detecting the emissions from the radioactive compound.
19. (New) The method of claim 18 wherein the compound is administered *in vivo*.
20. (New) The method of claim 18 wherein the compound is administered *in vitro*.
21. (New) The method of claim 18 wherein the emissions are detected using Single Photon Emission Computed Tomography or Positron Emission Tomography.
22. (New) The method of claim 18 wherein the organ is a brain.
23. (New) A method for marking an mGlu1 receptor comprising the steps of
- (a) administering a compound according to claim 1 to biological material; and
 - (b) detecting the emissions from the radioactive compound.
24. (New) The method of claim 23 wherein the compound is administered *in vivo*.
25. (New) The method of claim 23 wherein the compound is administered *in vitro*.
26. (New) The method of claim 23 wherein the emissions are detected using Single Photon Emission Computed Tomography or Positron Emission Tomography.
27. (New) The method of claim 23 wherein the biological material is a tissue sample, plasma fluid, body fluid, body part from a warm-blooded animal, or organ from a warm-blooded animal.
28. (New) A method of screening whether a test compound occupies or binds to an mGlu1 receptor in biological material comprising:
- (a) administering a compound according to claim 1 to biological material;
 - (b) administering the test compound to the biological material; and

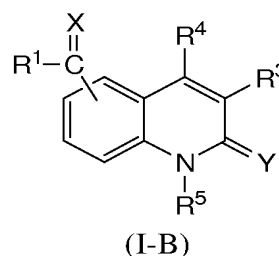
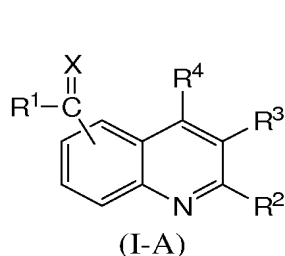
(c) detecting the emissions from the radioactive compound.

29. (New) The method of claim 28 wherein the emissions are detected using Single Photon Emission Computerized Tomography or Positron Emission Tomography.

30. (New) The method of claim 28 wherein the biological material is a tissue sample, plasma fluid, body fluid, body part from a warm-blooded animal, or organ from a warm-blooded animal.

31. (New) A method for marking an mGlu1 receptor comprising the steps of

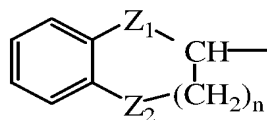
(a) radiolabelling a compound according to Formula (I-A) or (I-B)



an *N*-oxide form, a pharmaceutically acceptable addition salt, a quaternary amine or a stereochemically isomeric form thereof, wherein

X represents O; C(R⁶)₂ with R⁶ being hydrogen, aryl or C₁₋₆alkyl optionally substituted with amino or mono- or di(C₁₋₆alkyl)amino; S or N-R⁷ with R⁷ being amino or hydroxy;

R¹ represents C₁₋₆alkyl; aryl; thienyl; quinoliny; cycloC₃₋₁₂alkyl or (cycloC₃₋₁₂alkyl)C₁₋₆alkyl, wherein the cycloC₃₋₁₂alkyl moiety optionally may contain a double bond and wherein one carbon atom in the cycloC₃₋₁₂alkyl moiety may be replaced by an oxygen atom or an NR⁸-moiety with R⁸ being hydrogen, benzyl or C₁₋₆alkyloxycarbonyl; wherein one or more hydrogen atoms in a C₁₋₆alkyl-moiety or in a cycloC₃₋₁₂alkyl-moiety optionally may be replaced by C₁₋₆alkyl, hydroxyC₁₋₆alkyl, haloC₁₋₆alkyl, aminoC₁₋₆alkyl, hydroxy, C₁₋₆alkyloxy, arylC₁₋₆alkyloxy, halo, C₁₋₆alkyloxycarbonyl, aryl, amino, mono- or di(C₁₋₆alkyl)amino, C₁₋₆alkyloxycarbonylamino, halo, piperazinyl, pyridinyl, morpholinyl, thienyl or a bivalent radical of formula -O-, -O-CH₂-O or -O-CH₂-CH₂-O-; or a radical of formula (a-1)



a-1

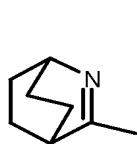
wherein Z_1 is a single covalent bond, O, NH or CH_2 ;

Z_2 is a single covalent bond, O, NH or CH_2 ;

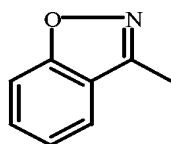
n is an integer of 0, 1, 2 or 3;

and wherein each hydrogen atom in the phenyl ring independently may optionally be replaced by halo, hydroxy, C_{1-6} alkyl, C_{1-6} alkyloxy or hydroxy C_{1-6} alkyl;

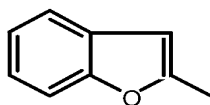
or X and R^1 may be taken together with the carbon atom to which X and R^1 are attached to form a radical of formula (b-1), (b-2) or (b-3);



b-1



b-2



b-3

R^2 represents hydrogen; halo; cyano; C_{1-6} alkyl; C_{1-6} alkyloxy; C_{1-6} alkylthio; C_{1-6} alkylcarbonyl; C_{1-6} alkyloxycarbonyl; C_{1-6} alkylcarbonyloxy C_{1-6} alkyl; C_{2-6} alkenyl; hydroxy C_{2-6} alkenyl; C_{2-6} alkynyl; hydroxy C_{2-6} alkynyl; tri(C_{1-6} alkyl)silane C_{2-6} alkynyl; amino; mono- or di(C_{1-6} alkyl)amino; mono- or di(C_{1-6} alkyloxy C_{1-6} alkyl)amino; mono- or di(C_{1-6} alkylthio C_{1-6} alkyl)amino; aryl; aryl C_{1-6} alkyl; aryl C_{2-6} alkynyl; C_{1-6} alkyloxy C_{1-6} alkylamino C_{1-6} alkyl; aminocarbonyl optionally substituted with C_{1-6} alkyl, C_{1-6} alkyloxy C_{1-6} alkyl, C_{1-6} alkyloxycarbonyl C_{1-6} alkyl or pyridinyl C_{1-6} alkyl; a heterocycle selected from thienyl, furanyl, pyrrolyl, thiazolyl, oxazolyl, imidazolyl, isothiazolyl, isoxazolyl, pyrazolyl, pyridyl, pyrazinyl, pyridazinyl, pyrimidinyl, piperidinyl and piperazinyl, optionally N-substituted with C_{1-6} alkyloxy C_{1-6} alkyl, morpholinyl, thiomorpholinyl, dioxanyl or dithianyl; a radical $-NH-C(=O)R^9$ wherein R^9 represents

C₁₋₆alkyl optionally substituted with cycloC₃₋₁₂alkyl, C₁₋₆alkyloxy, C₁₋₆alkyloxycarbonyl, aryl, aryloxy, thienyl, pyridinyl, mono- or di(C₁₋₆alkyl)amino, C₁₋₆alkylthio, benzylthio, pyridinylthio or pyrimidinylthio; cycloC₃₋₁₂alkyl; cyclohexenyl; amino; arylcycloC₃₋₁₂alkylamino; mono-or-di(C₁₋₆alkyl)amino; mono- or di(C₁₋₆alkyloxycarbonylC₁₋₆alkyl)amino; mono- or di(C₁₋₆alkyloxycarbonyl)amino; mono-or di(C₂₋₆alkenyl)amino; mono- or di(arylC₁₋₆alkyl)amino; mono- or diarylamino; arylC₂₋₆alkenyl; furanylC₂₋₆alkenyl; piperididiny; piperazinyl; indolyl; furyl; benzofuryl; tetrahydrofuryl; indenyl; adamantyl; pyridinyl; pyrazinyl; aryl; arylC₁₋₆alkylthio or a radical of formula (a-1) ;

a sulfonamid -NH-SO₂-R¹⁰ wherein R¹⁰ represents C₁₋₆alkyl, mono- or poly haloC₁₋₆alkyl, arylC₁₋₆alkyl, arylC₂₋₆alkenyl, aryl, quinoliny, isoxazolyl or di(C₁₋₆alkyl)amino;

R³ and R⁴ each independently represent hydrogen; halo; hydroxy; cyano; C₁₋₆alkyl; C₁₋₆alkyloxy; C₁₋₆alkyloxyC₁₋₆alkyl; C₁₋₆alkylcarbonyl; C₁₋₆alkyloxycarbonyl; C₂₋₆alkenyl; hydroxyC₂₋₆alkenyl; C₂₋₆alkynyl; hydroxyC₂₋₆alkynyl; tri(C₁₋₆alkyl)silaneC₂₋₆alkynyl; amino; mono- or di(C₁₋₆alkyl)amino; mono- or di(C₁₋₆alkyloxyC₁₋₆alkyl)amino; mono- or di(C₁₋₆alkylthioC₁₋₆alkyl)amino; aryl; morpholinylC₁₋₆alkyl or piperidinylC₁₋₆alkyl ; or

R² and R³ may be taken together to form -R²-R³-, which represents a bivalent radical of formula -(CH₂)₃-, -(CH₂)₄-, -(CH₂)₅-, -(CH₂)₆-, -CH=CH-CH=CH-, -Z₄-CH=CH-, -CH=CH-Z₄-, -Z₄-CH₂-CH₂-CH₂-, -CH₂-Z₄-CH₂-CH₂-, -CH₂-CH₂-Z₄-CH₂-, -CH₂-CH₂-CH₂-Z₄-, -Z₄-CH₂-CH₂-, -CH₂-Z₄-CH₂- or -CH₂-CH₂-Z₄-, with Z₄ being O, S, SO₂ or NR¹¹ wherein R¹¹ is hydrogen, C₁₋₆alkyl, benzyl or C₁₋₆alkyloxycarbonyl; and wherein each bivalent radical is optionally substituted with C₁₋₆alkyl.

or R³ and R⁴ may be taken together to form a bivalent radical of formula -CH=CH-CH=CH- or -CH₂-CH₂-CH₂-CH₂- ;

R⁵ represents hydrogen; cycloC₃₋₁₂alkyl; piperidinyl; oxo-thienyl; tetrahydrothienyl, arylC₁₋₆alkyl; C₁₋₆alkyloxyC₁₋₆alkyl; C₁₋₆alkyloxycarbonylC₁₋₆alkyl or C₁₋₆alkyl optionally substituted with a radical C(=O)NR_xR_y, in which R_x and R_y, each independently are hydrogen, cycloC₃₋₁₂alkyl, C₂₋₆alkynyl or C₁₋₆alkyl optionally

substituted with cyano, C₁₋₆alkyloxy, C₁₋₆alkyloxycarbonyl, furanyl, pyrrolidinyl, benzylthio, pyridinyl, pyrrolyl or thienyl;

Y represents O or S;

or Y and R⁵ may be taken together to form =Y-R⁵- which represents a radical of formula

-CH=N-N= (c-1);

-N=N-N= (c-2); or

-N-CH=CH- (c-3);

aryl represents phenyl or naphthyl optionally substituted with one or more substituents

selected from halo, hydroxy, C₁₋₆alkyl, C₁₋₆alkyloxy, phenyloxy, nitro, amino, thio, C₁₋₆alkylthio, haloC₁₋₆alkyl, polyhaloC₁₋₆alkyl, polyhaloC₁₋₆alkyloxy, hydroxyC₁₋₆alkyl, C₁₋₆alkyloxyC₁₋₆alkyl, aminoC₁₋₆alkyl, mono-or di(C₁₋₆alkyl)amino; mono-or di(C₁₋₆alkyl)aminoC₁₋₆alkyl, cyano, -CO-R¹², -CO-OR¹³, -NR¹³SO₂R¹², -SO₂-NR¹³R¹⁴, -NR¹³C(O)R¹², -C(O)NR¹³R¹⁴, -SOR¹², -SO₂R¹²; wherein each R¹², R¹³ and R¹⁴ independently represent C₁₋₆alkyl; cycloC₃₋₆alkyl; phenyl; phenyl substituted with halo, hydroxy, C₁₋₆alkyl, C₁₋₆alkyloxy, haloC₁₋₆alkyl, polyhaloC₁₋₆alkyl, furanyl, thienyl, pyrrolyl, imidazolyl, thiazolyl or oxazolyl;

and when the R¹-C(=X) moiety is linked to another position than the 7 or 8 position, then said 7 and 8 position may be substituted with R¹⁵ and R¹⁶ wherein either one or both of R¹⁵ and R¹⁶ represents C₁₋₆alkyl, C₁₋₆alkyloxy or R¹⁵ and R¹⁶ taken together may form a bivalent radical of formula -CH=CH-CH=CH-;

(b) administering the radiolabelled compound to biological material; and

(c) detecting the emissions from the radiolabelled compound.

32. (New) The method of claim 31 wherein the compound is administered to said biological material *in vivo*.

33. (New) The method of claim 31 wherein the compound is administered to said biological material *in vitro*.

34. (New) The method of claim 31 wherein the emissions are detected using Single Photon Emission Computerized Tomography or Positron Emission Tomography.

35. (New) The method of claim 31 wherein the biological material is a tissue sample, plasma fluid, body fluid, body part from a warm-blooded animal, or organ from a warm-blooded animal.